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~~Patent claims-~~

1. A method for converting interface definitions within a source code program into an intermediate format by means of a computer system which carries out the method, comprising the following steps:

A.: Identification of at least one object in the source code program;

B.: Identification of at least one interface in the at least one identified object;

wherein at least one of the identified interfaces may be an internal interface for producing a link from objects within the source code program and/or at least one of the identified interfaces may be an external interface for producing a link from an object with interfaces located outside the source code program;

and wherein the at least one interface may be an input interface and/or an output interface;

C.: Identification of at least one internal link between at least one output interface and at least one input interface between at least two objects and/or

Identification of at least one external link of the at least one external interface;

D.: Creation of an at least two-dimensional intermediate format table (1) having rows (4, 11, 14, 17, 21, 25, 34) arranged in a first dimension (2), having rows (5, 6, 18, 24) arranged in a second dimension (3), and having cells at the intersections of the first and second rows,

wherein rows (4) in the first dimension (4) are assigned designations for each of the at least one identified objects;

wherein rows (5, 6) in the second dimension (3) are assigned designations for each of the at least one identified links; and

wherein, designations (8) for the output interface and/or input interface which is associated with both the respective identified object and the identified internal link are inserted in each of those cells which are located at the intersection of one of the rows (4) in the first dimension with the designation of an identified object and one of the rows (5) in the second dimension (3) with the designation of an identified internal link, and/or

wherein, designations (10) for the output interface and/or input interface which is associated with both the respective identified object and the identified external link are inserted in each of those cells (9) which are located at the

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intersection of one of the rows (4) in the first dimension with the designation of an identified object and one of the rows (6) in the second dimension (3) with the designation of an identified external link.

5 2. The method as claimed in claim 1, wherein a first specific row (11) in the first dimension (2) is used to indicate the mode of the external interface of the at least one identified external link, and

10 details (13) of the mode of the external interface for the at least one identified external link are inserted in each of those cells (12) which are located at the intersection of the first specific row (11) in the first dimension and the rows
15 (6) in the second dimension (3) with the designations of the at least one identified external link.

20 3. The method as claimed in claim 2, wherein the external interface may be an input interface, an output interface, a bidirectional interface or an interface with an undefined flow direction.

4. The method as claimed in one of claims 1 to 3, wherein
25 in addition, the data types of the at least one identified interface are defined,

30 at least one second specific row (14) in the first dimension (2) is assigned details of the data types of the at least one identified interface, and

35 designations (16) for the data types associated with the at least one identified link are inserted in each of those cells (15) which are located at the intersection of the second specific row (14) and the rows (5, 6) in the second dimension (3) having the designations of the at least one identified link.

40 5. The method as claimed in one of claims 1 to 4, wherein in addition, at least one constant is identified in the at least one identified object and/or at least one external constant which can be used by all the objects in the source code program;

45 the data type of the at least one identified constant and/or external constant is defined;

50 at least one third specific row (17) in the first dimension (2) is assigned details of the data type of the at least one constant;

55 at least one first specific row (18) in the second dimension (3) is assigned designations of the at least one identified constant and/or external constant; and

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- designations (20) for the data type associated with the at least one identified constant are inserted in each of those cells (19) which are located at the intersection of the at least one third specific row (17) and the at least one first specific row (18) in the second dimension (3) with designations of the at least one identified constant.
6. The method as claimed in claim 5, wherein
- 10 in addition, a value or a method of calculation is defined for the at least one identified internal constant and/or external constant;
- 15 at least one fourth specific row (21) in the first dimension (2) is assigned details of the value (23) or of the method of calculation (35) of the at least one constant; and
- 20 the value (23) or the method of calculation (35) of the at least one identified constant is inserted in each of those cells (22) which are located at the intersection of the at least one fourth specific row (21) and the first specific rows (18) in the second dimension (3) with designations of the at least one identified constant.
- 25 7. The method as claimed in one of claims 1 to 6, wherein
- in addition, a value or a method of calculation is defined for the at least one identified link;
- 30 at least one fifth specific row (34) in the first dimension (2) is assigned details of the value (36) or of the method of calculation of the at least one identified link; and
- 35 wherein the value (36) or the method of calculation of the at least one identified link is inserted in each of those cells which are located at the intersection of the at least one fifth specific row (34) and one of the rows (5) in the second dimension (3) with the designation of an identified internal link and/or of the rows (6) in the second dimension (3) with the designation of an identified external link.
- 40 8. The method as claimed in one of claims 1 to 7, wherein said method has the further step of:
- 45 - Identification of the original designations (26, 27, 28, 38) which the at least one object, the at least one link and/or the at least one constant have in the source code program,
- 50 wherein specific title rows (24, 25) are assigned details of the identified original designations (26, 27, 28, 38); and
- the original designations (26, 27, 28, 38) are inserted into cells (29, 30, 31, 37) in the title rows (24, 25).
- 55 9. The method as claimed in one of claims 1 to 8, wherein

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the designations (8) of the at least one interface are compiled from an identifier for the respective interface and at least one detail which is selected from an identification of the mode of the interface, of the data type of the interface, of a default value and of the details of a data type conversion function which can be applied to the interface.

10. The method as claimed in one of claims 1 to 9, wherein said method has the further steps of:

- Identification of the original designations (32, 33) which the at least one interface has in the source code program; and

- Use of the original designations (32, 33) as identifiers.

11. The method as claimed in one of claims 1 to 10, wherein the source code program is a code in a hardware description language.

12. The method as claimed in claim 11, wherein the at least one object represents an interface entity of an electronic component.

13. The method as claimed in claim 11 or 12, wherein the at least one internal link represents a signal.

14. The method as claimed in one of claims 11 to 13, wherein the at least one external link represents a port.

15. The method as claimed in one of claims 1 to 14, wherein at least one of the identified objects contains a sub source code program in it, which can likewise be converted into an intermediate format; and wherein, once a sub source code program has been converted to a sub format table, a cross-reference to the sub format table is inserted in a cell in the row in the first dimension which is associated with the converted object.

16. The method as claimed in one of claims 1 to 15, wherein a cross-reference to at least one identified object which is stored as a separate unit as source code program is inserted in a cell in the row in the first dimension which is associated with the stored object.

17. A method for converting interface definitions from an at least two-dimensional intermediate format table having first rows (4, 11, 14, 17, 21, 25, 34) arranged in a first dimension (2), second rows (5, 6, 18, 24) arranged in a second dimension (3) and cells at the intersections of the first and second rows,

in which rows (4) in the first dimension (2) are assigned designations for at least one object;

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in which rows (5, 6) in the second dimension (3) are assigned designations for at least one internal link between the objects and/or at least one external link of an object; and

5 in which designations (8) for an internal output interface and/or internal input interface which is/are associated with both the respective object and the link are inserted in each of those cells (7) which are located at the intersection of one of the rows (4) in the first dimension (2) with the
10 designation of an object and one of the rows (5) in the second dimension (3) with the designation of an internal link, and/or

15 in which designations (10) for the external output interface and/or external input interface which is/are associated with both the respective object and the external link are inserted in each of those cells (9) which are located at the intersection of one of the rows (4) in the first dimension (2) with the designation of an object and one of the rows (6)
20 in the second dimension (3) with the designation of an external link;

by means of a computer system, which carries out the method, into an object code program with the following steps:

25 - Creation of at least one program code object on the basis of information, contained in the intermediate format table (1), about the at least one object;

30 - Assignment of associated internal output interfaces and/or internal input interfaces to their program code objects;

35 - Creation of at least one link between program code objects on the basis of the information, contained in the intermediate format table, about the internal links of the internal input interfaces and internal output interfaces; and/or

40 - Assignment of associated external output interfaces and/or external input interfaces to their program code objects.

18. The method as claimed in claim 17, wherein

45 at least one second specific row (14) in the first dimension (2) in the intermediate format table (1) is assigned details of the data types of the at least one interface, and

50 designations (16) for the data types associated with the at least one link are inserted in each of those cells (15) which are located at the intersection of the second specific row (14) and the rows (5, 6) in the second dimension (3) with the designations of at least one link;

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having the further step of:

- Definition of the data types of the at least one interface which is assigned to the at least one program code object and is associated with the at least one link.

19. The method as claimed in claim 17 or 18, wherein

- at least one third specific row (17) in the first dimension (2) in the intermediate format table (1) is assigned details of the data types of at least one constant in at least one object and/or at least one external constant, which details can be used by all the objects;

- at least one first specific row (18) in the second dimension (3) is assigned designations of the at least one constant and/or at least one external constant; and

- designations (20) for the data type associated with the at least one constant are inserted in each of those cells (19) which are located at the intersection of the at least one third specific row (17) and the at least one first specific row (18) in the second dimension (3) with designations of the at least one constant;

having the further step of:

- Definition of at least one internal constant and/or of at least one external constant in the at least one program code object and/or in a general part of the object program code.

20. The method as claimed in claim 19, wherein

- at least one fourth specific row (21) in the first dimension (2) in the intermediate format table (1) is assigned details of a value (23) or a method of calculation (35) of the at least one internal constant and/or of the at least one external constant; and

- the value (23) or the method of calculation (35) of the at least one constant is inserted in each of those cells (22) which are located at the intersection of the fourth specific row (21) and the first specific rows (18) in the second dimension (3) with designations of the at least one constant;

having the further step of:

- Assignment of the value (23) or of the method of calculation (35) of the at least one constant to the at least one constant defined in the program code.

21. The method as claimed in one of claims 17 to 20, wherein

- at least one fifth specific row (34) in the first dimension (2) in the intermediate format table (1) is assigned details of the value or of the method of calculation of the at least

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one link; and

the value (36) or the method of calculation of the at least one link is inserted in each of those cells which are located at the intersection of the at least one fifth specific row and one of the rows in the second dimension (3) with the designation of an internal link and/or of the rows (6) in the second dimension (3) with the designation of an external link;

having the further step of:

- Assignment of the value or of the method of calculation of the at least one link to the link created in the object program code.

22. The method as claimed in one of claims 17 to 21, wherein specific title rows (24, 25) in the intermediate format table (1) are assigned details of the designations of the at least one object, of the at least one link and/or of the at least one constant; and

wherein the designations are inserted in cells (29, 30, 31, 37) in the title rows (24, 25);

having the further step of:

- Naming of the at least one program code object, of the at least one link and/or of the at least one constant on the basis of the designations in the cells (29, 30, 31, 37) in the title rows (24, 25) in the intermediate format table (1).

23. The method as claimed in one of claims 17 to 22, wherein a cross-reference to a sub format table is inserted at least in one cell in a row in the first dimension which is associated with an object;

having the further step of:

- Linking of the program code object produced from the object to subprogram code produced from the sub format table.

24. The method as claimed in one of claims 17 to 23, wherein a cross-reference to a source code program which is stored as a separate unit is inserted at least in one cell in the row in the first dimension which is associated with an object;

having the further step of:

- Linking of the program code object produced from the at least one object to the source code program which is stored as a separate unit.

25. An intermediate format table (1) for storing interface

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information, which is contained in program code, in a computer system

having at least two dimensions;

5 having rows arranged in a first dimension (2), rows arranged in a second dimension (3) and cells at the intersections of the first and second rows,

10 wherein rows (4) in the first dimension (2) are assigned designations for at least one object in the program code;

wherein rows (5, 6) in the second dimension (3) are assigned designations for at least one internal link between objects
15 and/or designations for at least one external link of the program code; and

wherein designations for an output interface and/or input interface which is/are associated with both the respective
20 object and the internal link are inserted in each of those cells (7) which are located at the intersection of one of the rows (4) in the first dimension (2) with the designation of an object and one of the rows (5) in the second dimension (3) with the designation of an internal link, and/or

25 designations for the output interface and/or input interface which is/are associated with both the respective object and the external link are inserted in each of those cells which are located at the intersection of one of the rows (4) in the
30 first dimension (2) with the designation of an object and one of the rows (6) in the second dimension (3) with the designation of an external link.

26. The intermediate format table as claimed in claim 25,
35 wherein

a first specific row (11) in the first dimension (2) is used to indicate the mode of an external interface for the at least one external link, and

40 details (13) of the mode of the external interface for the at least one external link are inserted in each of those cells (12) which are located at the intersection of the first specific row (11) in the first dimension (2) and the rows (6)
45 in the second dimension (3) with the designations of the at least one external link.

27. The intermediate format table (1) as claimed in one of claims 25 or 26, wherein

50 at least one second specific row (14) in the first dimension (2) is assigned details of the data types of the at least one interface, and

55 designations for the data types associated with the at least one link are inserted in each of those cells (15) which are

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located at the intersection of the second specific row (14) and the rows (5, 6) in the second dimension (3) with the designations of the at least one link.

5 28. The intermediate format table (1) as claimed in one of claims 25 to 27, wherein

at least one third specific row (17) in the first dimension (2) is assigned details of the data types of at least one
10 internal constant and/or of at least one external constant from the program code;

first specific rows (18) in the second dimension (3) are assigned designations of the at least one internal constant
15 and/or of the at least one external constant; and

designations (20) for the data types associated with the at least one constant are inserted in each of those cells which are located at the intersection of the third specific row
20 (17) and the first specific rows (18) in the second dimension (3) with the designations of the at least one constant.

29. The intermediate format table (1) as claimed in claim 28, wherein

25 at least one fourth specific row (21) in the first dimension (2) is assigned details of a value or of a method of calculation of the at least one constant; and

30 the value (23) or the method of calculation (35) of the at least one constant is inserted in each of those cells (22) which are located at the intersection of the at least one fourth specific row (21) and the first specific rows (18) in the second dimension (3) with designations of the at least
35 one constant.

30. The intermediate format table (1) as claimed in one of claims 25 to 29, wherein

40 at least one fifth specific row (34) in the first dimension (2) is assigned details of a value (36) or of a method of calculation of the at least one link; and

the value or the method of calculation of the at least one link is inserted in each of those cells which are located at the intersection of the at least one fifth specific row (34) and one of the rows (5) in the second dimension (3) with the designation of an internal link and/or of the rows (6) in the second dimension (3) with the designation of an external
50 link.

31. The intermediate format table (1) as claimed in one of claims 25 to 30, wherein

55 specific title rows (24, 25) are assigned details of the original designations (26, 27, 28, 38), which the at least

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- one object, the at least one link and/or the at least one constant have in the program code; and
- the original designations (26, 27, 28, 38) are inserted in
5 cells (29, 30, 31, 37) in the title rows (24, 25).
32. The intermediate format table (1) as claimed in one of claims 25 to 31, wherein
- 10 the designations (8) of the at least one interface are composed of an identifier for the respective interface and at least one detail which is selected from an identification of the mode of the interface, of the data type of the interface,
15 of a default value and of the details of a data type conversion function which can be applied to the interface.
33. The intermediate format table (1) as claimed in one of claims 25 to 32, wherein
- 20 any desired cells in the intermediate format table may contain annotations which may be used to control programs to analyse the information contained in the intermediate format table, and/or for information for a user.
- 25 34. The intermediate format table as claimed in claim 33, wherein at least one further dimension in the intermediate format table is allocated to the annotations, wherein rows in the further dimension are assigned specific types of annotations, and an annotation which is to be used is used at
30 the intersections of the rows in the first and second dimensions (2, 3) which govern the annotation with the row in the further dimension which is assigned to the type of annotation to be used.

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